Multiplying Fractions by Whole Numbers

Multiplying Fractions by Whole Numbers: Apply, Compare, and Design

Name _____ **Date** _____ **Score** _____ / 8

QUICK REVIEW

A whole-number factor counts equal groups. Three groups of $\frac{3}{4}$ give $3 \times \frac{3}{4} = \frac{9}{4} = 2\frac{1}{4}$. Multiply the numerator by the whole number; the part size stays fourths.

Worked example

Calculate $\frac{3}{7} \times 5$. Show the place-value or fraction calculation.

1. Multiply numerators: $3 \times 5 = 15$.
2. Multiply denominators: $7 \times 1 = 7$.
3. $\frac{3}{7} \times 5 = \frac{15}{7} = \frac{15}{7}$ after simplifying.
Answer: $\frac{15}{7}$.

Practice Problems

Show your thinking.

1. A full recipe uses $\frac{2}{3}$ kg of flour. A batch is 4 times that recipe. How much flour is needed?

2. Choose the missing amount so this plan totals $\frac{25}{8}$: $\frac{5}{8} \times \square$. Write the completed equation.

3. Route A has 6 sections of $\frac{7}{11}$ km each. Route B has 5 sections of $\frac{8}{11}$ km each. Which route is longer, and by how much?

4. Each of two containers holds $\frac{9}{13} \times 3$ L. Another $\frac{1}{4}$ L is added to their combined contents. Find the final volume.

5. Complete the two-output table for the rule: input $\times 8$. Inputs are $\frac{5}{7}$ and $\frac{10}{7}$. Compare the outputs.

Input	Output
$\frac{5}{7}$	
$\frac{10}{7}$	

6. A student writes $\frac{3}{5} \times 7 = \frac{47}{10}$. Correct the result and check it.

7. A full recipe uses $\frac{7}{9}$ kg of flour. A batch is 9 times that recipe. How much flour is needed?

8. Use an inverse operation to verify a proposed result of 6 for $\frac{1}{2} \times 12$. Show both computations.

Answer Key

1. $\frac{8}{3}$ kg.
2. 5; $\frac{5}{8} \times 5 = \frac{25}{8}$.
3. Route A is longer by $\frac{2}{11}$ km.
4. $\frac{229}{52}$ L.
5. Outputs $\frac{40}{7}$ and $\frac{80}{7}$; second minus first is $\frac{40}{7}$.
6. $\frac{21}{5}$, not $\frac{47}{10}$.
7. 7 kg.
8. The result 6 is correct.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. The quantities call for $\frac{2}{3} \times 4$; the result is measured in kg.
2. Multiply numerators: $2 \times 4 = 8$.
3. Multiply denominators: $3 \times 1 = 3$.
4. $\frac{2}{3} \times 4 = \frac{8}{3} = \frac{8}{3}$ after simplifying.

Problem 2

1. The total $\frac{25}{8} = \frac{25}{8}$ contains 25 pieces of size $1/8$.
2. Each group uses 5 pieces, so $25 \div 5 = 5$ groups.
3. Check the completed product: $\frac{5}{8} \times 5 = \frac{25}{8}$.

Problem 3

1. A has $6 \times 7 = 42$ elevenths of a kilometer: $\frac{42}{11}$ km.
2. B has $5 \times 8 = 40$ elevenths of a kilometer: $\frac{40}{11}$ km.
3. The pieces are equal in size. Subtract $\frac{42}{11} - \frac{40}{11} = \frac{2}{11}$ km.

Problem 4

1. Multiply numerators: $9 \times 3 = 27$.
2. Multiply denominators: $13 \times 1 = 13$.
3. $\frac{9}{13} \times 3 = \frac{27}{13} = \frac{27}{13}$ after simplifying.
4. Two containers hold $2 \times \frac{27}{13} = \frac{54}{13}$ L.
5. After the addition: $\frac{54}{13} + \frac{1}{4} = \frac{229}{52}$ L.

Problem 5

1. Multiply numerators: $5 \times 8 = 40$.
2. Multiply denominators: $7 \times 1 = 7$.
3. $\frac{5}{7} \times 8 = \frac{40}{7} = \frac{40}{7}$ after simplifying.
4. Second output: $\frac{10}{7} \times 8 = \frac{80}{7}$; difference $\frac{80}{7} - \frac{40}{7} = \frac{40}{7}$.

Problem 6

1. Multiply numerators: $3 \times 7 = 21$.
2. Multiply denominators: $5 \times 1 = 5$.
3. $\frac{3}{5} \times 7 = \frac{21}{5} = \frac{21}{5}$ after simplifying.
4. The claimed value differs by $\frac{1}{2}$, so it fails the exact calculation.

Problem 7

1. The quantities call for $\frac{7}{9} \times 9$; the result is measured in kg.
2. Multiply numerators: $7 \times 9 = 63$.
3. Multiply denominators: $9 \times 1 = 9$.
4. $\frac{7}{9} \times 9 = \frac{63}{9} = 7$ after simplifying.

Problem 8

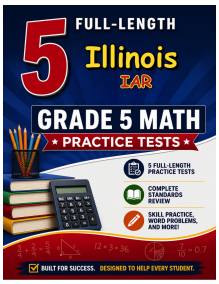
1. Multiply numerators: $1 \times 12 = 12$.
2. Multiply denominators: $2 \times 1 = 2$.
3. $\frac{1}{2} \times 12 = \frac{12}{2} = 6$ after simplifying.
4. Inverse check: $6 \div 12 = \frac{1}{2}$.

TESTINAR

Keep Building Grade 5 Math Skills

Choose the practice book matched to your state assessment and turn worksheet practice into a complete test-prep plan.

All Grade 5 books



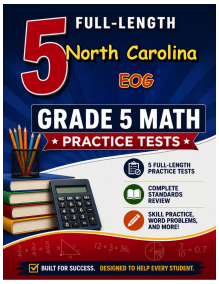
ILLINOIS IAR

5 Full-Length Math Practice Tests

Build Grade 5 accuracy, confidence, and test stamina with 5 printable practice tests.

Printable eBook • Instant PDF access

View eBook



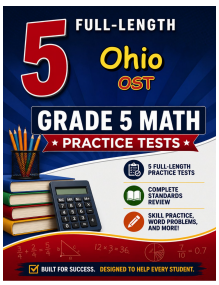
NORTH CAROLINA EOG

5 Full-Length Math Practice Tests

Build Grade 5 accuracy, confidence, and test stamina with 5 printable practice tests.

Printable eBook • Instant PDF access

View eBook



OHIO OST

5 Full-Length Math Practice Tests

Build Grade 5 accuracy, confidence, and test stamina with 5 printable practice tests.

Printable eBook • Instant PDF access

View eBook

Need a different state?
Testinar has Grade 5 math practice books for state assessments across the country.

TESTINAR.COM/GRADES/5